

3D Multi-Channel Networked Visualization System for National LambdaRail, Phase II

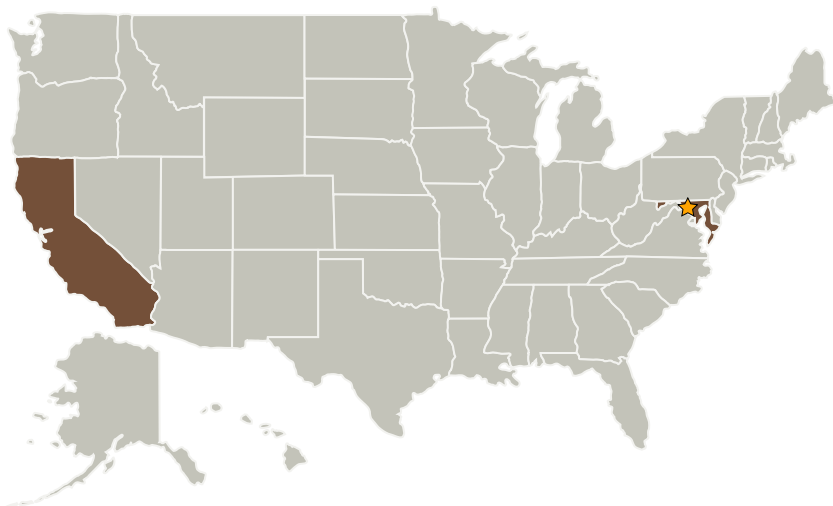
Completed Technology Project (2005 - 2007)



Project Introduction

Multichannel virtual reality visualization is the future of complex simulation with a large number of visual channels rendered and transmitted over high-speed networks like National LambdaRail (NLR). POC proposed to develop a next generation "true" 3D visualization system that works without headwear and to link it through the NLR with a remote computing center. To accomplish this goal we have developed in Phase I a fully functional 3D Multichannel Networked (3DMCN) system based on stereoscopic principles and compatible with the NLR network. One of the enabling technologies that is being developed in this project is multicorrelated channel video compression, which takes advantage of spatial redundancy in multiscopic channels. The Phase I demonstration included stereoscopic 3DMCN system linked to live real-time high definition (1080i) dual-channel video. In Phase II we will continue the development of a new compression scheme that can offer 200-300% improvement in compression ratios for multiscopic channels versus independent channel compression used in other state-of-the-art compression approaches. We will also concentrate on the improvement of the existing true 3D visualization system in terms of higher resolution, lower channel-to-channel crosstalk, and wider field-of-view.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Physical Optics Corporation	Supporting Organization	Industry	Torrance, California

Primary U.S. Work Locations

California	Maryland
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
 - └ TX11.5 Mission Architecture, Systems Analysis and Concept Development
 - └ TX11.5.2 Tools and Methodologies for Performing Systems Analysis